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U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form

Application No.: 10/798,378 First Named Applicant: Anaclerio
Examiner: Tan Mai Art Unit: 2193 Status of Application: Pending

Tentative Participants:
(1) Kelly Kasha **(2)**________
(3)________ **(4)**________

Proposed Date of Interview: 3/10 **Proposed Time:** 12 **(AM/PM)**

Type of Interview Requested:
(1) [✓] Telephonic (2) [ ] Personal (3) [ ] Video Conference

Exhibit To Be Shown or Demonstrated: [ ] YES [✓] NO
If yes, provide brief description:________

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) 101	1		[ ]	[ ]	[ ]
(2)			[ ]	[ ]	[ ]
(3)			[ ]	[ ]	[ ]
(4)			[ ]	[ ]	[ ]

[ ] Continuation Sheet Attached

Brief Description of Arguments to be Presented:

An interview was conducted on the above-identified application on ________.

NOTE:
This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).
This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.

(Applicant/Applicant's Representative Signature) (Examiner/SPE Signature)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/798,378
Applicant	:	Cheri A. Anaclerio
Filed	:	March 12, 2004
Title	:	SELECTIVE FILTER HAVING LINEAR PHASE
TC/A.U.	:	2193
Examiner	:	Tan V. Mai
Docket No.	:	000375-078
Customer No.	:	038598

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Alexandria, Virginia 22313-1450

AMENDMENT TO ACCOMPANY REQUEST FOR CONTINUED EXAMINATION UNDER 37 C.F.R. § 1.114

Sir:

In response to the December 13, 2007 Final Office Action, please amend the above-identified application as follows:

Amendments to the Claims begin on page 2 of this response.

Remarks/Arguments begin on page 6 of this response.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A computer-implemented method of designing a customized filter having nearly ideal responses in both gain and phase or gain and time, ~~by utilizing poles derived from known standard sets of poles wherein the known standard sets of poles being chosen to define a frequency domain and a time domain by proportionally migrating at least one set of complex poles form a first location to a second location~~ comprising the steps of:

choosing a first set of complex frequency poles from ~~said~~ a first location and ~~said~~ a second set of complex frequency poles from a second location when a desired passband phase of the filter is linear while preserving the desired magnitude response; and

normalizing said first and second sets of complex frequency poles from said first location and said second location to obtain a new proportional complex pole constellation~~;~~ by:

determining weighting factors by varying the weighting factors until a computed stopband gain and a passband phase both meet system requirements of nearly ideal responses.

multiplying said first and second sets of complex frequency poles by the ~~predetermined~~ weighting factors to calculate the new proportional complex pole constellation. ~~a hybrid first constellation and a hybrid second constellation; and~~

~~renormalizing the hybrid first constellation and the hybrid second constellation so as to obtain a proportionally migrated complex pole constellation to said second location~~ wherein the new proportional complex pole constellation defines the customized filter, the customized filter having nearly ideal responses in both gain and phase or gain and time.~~,~~

~~thereby producing the customized filter having nearly ideal responses in both the frequency domain and the time domain.~~

2. (original): The method of claim 1, wherein said step of choosing said set of complex frequency poles from said first location and said second location, comprises choosing a pair of normalized set of poles

$$C_n = = -c_1' + jc_1''$$

and

$$Bn = -b_1' + jb_1''$$

when C_n and B_n comprises a first and second normalized set of poles c_n and b_n, and wherein the step of multiplying comprises multiplying the end-point number of poles by x and y, where x and y are weighting numbers,
and where the step of normalizing comprises dividing the sum of the weighted poles by x and y according to the equation

$$\frac{x(-c_1' + jc_1'') + y(b_1 + jb_1'')}{x + y}$$

so as to migrate, wherein if $x > y$, then the new pole being closer to the first location; and if $x < y$, then the new pole being closer to the second location.

3. (original): The method of claim 2, wherein C_n comprises a Chebychev constellation of complex frequency poles and B_n comprises a Bessel constellation of complex frequency poles, and the first location comprises a Chebychev location and the second location comprises a Bessel location.

4. (original): The method of claim 1, wherein an arrangement of poles being calculated having graded characteristics between two of the extremes which is controlled by a choice of x and y.

5. (original): The method of claim 1, wherein the constellation being closer to the imaginary axis being chosen to be anywhere between a Butterworth set and a high-ripple Chebychev set; and the left-most set of poles being a synchronously tuned or a Gaussian constellation or other linear phase or low time transient constellation.

6. (original): The method of claim 1, wherein said hybrid model achieves 60 dB at about 2.2 times the passband edge.

7. (original): The method of claim 1, wherein the phase response of the hybrid filter being more linear than that of the Chebychev filter, and having a phase deviation less than the phase deviation of the Chebycheb.

8. (cancelled).

9. (original): The method of claim 7, wherein the method includes the steps of:
obtaining a favorable response combination of gain and phase or gain and time response, and
using the normalized pole locations to design a vast array of filters.

10. (original): The method of claim 8, further comprising the steps of:
using simple transformations to frequency scale a low pass filter to any bandwith, and
using other transformations to convert to bandpass filters.

11. (original): The method of claim 8, further comprising the steps of:
transforming poles to bandpass clusters; and
using direct synthesis computer programs.

12. (currently amended): A computer-implemented method of designing an n^{th} order filter by initially selecting known values for each element of said filter, said known values being selected from a relatively high selectivity type filter value as a first extreme value and a linear phase or time domain filter value as a second extreme value, said first extreme value being defined as a first set of numbers forming a first set of poles on a complex frequency plane, and said second extreme value being defined as a second set of numbers forming a second set of poles on said complex frequency plane, and a first constellation defined by a plurality of said first set of poles and a second constellation being defined by a plurality of said second set of poles, said method comprising the steps of:

choosing at least one first set of complex frequency poles in a complex frequency plane to form a first constellation based on the extreme characteristics of the filter, and at least one second set of complex frequency poles in the complex frequency plane to form a second constellation based on the extreme characteristics of the filter so that a desired passband phase of the filter is linear while preserving the desired magnitude; and

normalizing ~~a set~~ the first and second sets of complex frequency poles to obtain a proportional complex pole constellation~~;~~ by:

determining weighting factors by varying the weighting factors until a computed stopband gain and a passband phase both meet system requirements of nearly ideal responses,

multiplying the ~~proportional complex pole constellation~~ the first and second sets of complex frequency poles by the weighting factors to calculate the proportional complex pole constellation; and

~~renormalizing a resulting complex pole constellation to obtain a hybrid arrangement of pole constellations having graded characteristics between the first and second constellations,~~ wherein the proportional complex pole constellation defines the n^{th} order filter, the n^{th} order filter having nearly ideal responses in both gain and phase or gain and time.

~~thereby producing the customized filter having nearly ideal responses in both the frequency domain and the time domain.~~

13. (original): The method of claim 12 wherein the relatively high selectivity filter value is selected from a Chebychev filter value.

14. (original): The method of claim 12 wherein the linear phase or time domain filter value is selected from a Bessel filter value.

15. (original): The method of claim 12 wherein the relatively high selectivity filter value is selected from a Chebychev filter value and wherein the linear phase or time domain filter value is selected from a Bessel filter value.

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REMARKS/ARGUMENTS

Claims 1-15 are pending. By this amendment, claims 1 and 12 are amended and claim 8 is cancelled. Support for these claim amendments can be found at paragraphs [0042-43] and [0053] of the specification. No new matter is introduced. Reconsideration and prompt allowance of the claims is respectfully requested.

35 U.S.C. § 112 Rejections

Claims 1-15 are rejected under 35 U.S.C. § 112. Claims 1 and 12 have been amended to remove the objected phrase. Withdrawal of the rejection is respectfully requested.

35 U.S.C. § 101 Rejections

Claims 1-15 are rejected under 35 U.S.C. § 101. This rejection is respectfully traversed.

Claims 1 and 12 are amended to recite a computer-implemented method for designing a customized filter having nearly ideal responses in both the frequency domain and the time domain. The computer-implemented method chooses a first and second sets of complex frequency poles, and normalizes the first and second sets of complex frequency poles to obtain a new proportional complex pole constellation by: determining weighting factors by varying the weighting factors until a computed stopband gain and a passband phase both meet system requirements of nearly ideal responses, and multiplying said first and second sets of complex frequency poles by the weighting factors to calculate the new proportional complex pole constellation. The new proportional complex pole constellation defines the customized filter that has nearly ideal responses in both gain and phase or gain and time, which filter is a concrete, useful, and tangible result. *See State Street Bank v. Signature Financial Group, Inc.*, 47 U.S.P.Q.2d 1596, 1601 (Fed. Cir. 1998) (holding that a price for a financial product is a concrete, useful, and tangible result). Therefore, claims 1 and 12 (and their respective dependent claims) contain statutory subject matter under 35 U.S.C. § 101. Withdrawal of the rejection of claims 1-15 under 35 U.S.C. §101 is respectfully requested.

In view of the above remarks, Applicant respectfully submits that the application is in condition for allowance. Prompt examination and allowance are respectfully requested.

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Should the Examiner believe that anything further is desired in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

Respectfully submitted,

Date: ___________

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